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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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June 19, 1989

TO: File

FROM: Scott Johnson, Reclamation Engineer

RE: White River Shale Project, Tracts Ua and Ub, M/047/017, Uintah County, Utah

Field Trip

On Wednesday, June 7, 1989, John Blake of State Lands and I drove down to the idle shale mine currently maintained by the BLM. On the way to the mine, we stopped at the BLM office and met with Gary Hunter, District Operations Manager, to obtain cost figures on the mine maintenance. Peter Sokolosky, a minerals geologist with the Vernal District BLM, accompanied John and I to the mine site.

The purpose of the trip was to obtain information on the ventilation and pumping equipment available at the mine. A 50 HP, 100,000 cfm vane-axial fan is used to ventilate the mine. A standby 20HP, 25,000 cfm vane-axial fan is available. The water leaking from the birds nest aquifer is routed down Decline C to a sump. A 20HP Gardner Denver pump is used to pump the water to the surface, where it evaporates in a sediment pond.

Ken Hutchings is employed by the BLM to maintain the minesite and prevent trespass. He was onsite during the trip to answer questions and help us find information in the files. I copied his log on air quality and air quantity readings he has recorded since November 3, 1986. This information is attached as Table 1 and Figures 1, 2 and 3.

Power Consumption

We stopped in Roosevelt on the way back to Salt Lake to discuss the rate structure used by Moon Lake Electric Association for the White River Shale Project. We met with Kenneth Winder, Manager of Engineering, and Allen Frandsen, Consumer Accounting Supervisor. Currently, the project is being billed as a Large Power Primary Service (LPPS). The minimum rate for this service is $2,526/month ($30,312/year). During the last 12 month period, January was the only month the mine site used enough power to exceed the minimum. This unusually high killowatt usage during January was partially due to the roof heaters being used to prevent ice damage to the service building. As long as the property is being maintained, this seasonal expense will probably be unavoidable.

After discussing the apparently excessive rate with Mr. Frandsen the previous day (June 6), he suggested the project may qualify for the Large Power Utah Service (LPUS). Mr. Winder agreed with this possibility during our June 7 meeting. Currently, the meter is on the high voltage line (13,200v) located outside of the entrance gate to Ua/Ub. WRSP built and owned the distribution network from this meter to the substation and transformers on the mine site. The transformers at the substation and poles step the power down to 4160v and 480v.

To qualify for the LPUS rate, the meter must be on a low or medium voltage line. Since the mine currently uses only low and medium voltages, it would be practical to move the meter(s). The only drawback to this is the following:

(a) Moon Lake Electric would control (own) the transmission line to the substation;

(b) Moon Lake Electric would also assume ownership of transformers located on the 'hot' side of meters.

In a subsequent conversation with Mr. Winder, it was agreed that the transformers not needed for the initial conversion would remain the property of Ua/Ub. (These transformers could be stored in the service building until needed). The only transformers needed for the conversion would be the following:

(a) A transformer at the main office building. This will step the power down to 480v. Ua/Ub will need to install a meter loop here.

(b) A transformer at the ventilation shaft. The existing transformer (1000 KVA) is too large for current requirements and can be stored in the service building. A smaller transformer can be installed to step power down to 480v. Ua/Ub will need to install a meter loop here.

(c) An electrical engineer will need to determine the most efficient power arrangement. It may be possible to use a single transformer at the substation to adequately supply power for the fan, pump, and service building.

If the mine becomes active, the stored transformers will be available for service. Although the loss of ownership of the powerline will reduce the power rate during the idle period, it will not affect the quality of service. Table 2 shows the power usage for the project during the past 12 months. The BLM paid $30,688 in power consumption during this 12 month period using the LPPS rate. The same power consumption will cost $20,698 using the LPUS rate. Figure 4 illustrates the projected savings using the LPUS rate and also possible savings implementing the ventilation changes discussed below.

Ventilation and Pumping

As shown in Table 1, the fan operation apparently has little effect on air quality in the mine. Since air quantity measurements were not recorded for the first 10 months of the BLM operation of the project, the effect of fan operation on quantity of air is not known.

Actually the data may be misleading. Although the fan was generally off during the readings, the fan was operated for unspecified periods between the readings. Since the information was not previously documented, I suggest the following:

(a) Leave the fan off. By opening the gravity hinged doors in the fan building, a constant year-round volume can be regulated and maintained;

(b) Regulate air volume to a minimum 75,000 cfm at hinged doors. Hopefully, this will maintain a minimum air flow of 20,000 to 25,000 cfm at the pump station. (Using the GMC diesel truck for underground access, a minimum volume of 15,000 cfm is required by law; the diesel Isuzu truck can operate with 9500 cfm);

(c) Record the airflow on a daily basis, until such time that a maximum flow is obtained. At this point, carefully secure and mark the door positions (to prevent freezing of pipeline during the winter, these doors will have to be closed slightly).

By maintaining the 75,000 (or greater) airflow at the fan building, the following pumping schedule may be obtainable:

(a) currently the pump at the pump station pumps twice daily for 45 minutes each time. This pumps out approximately 4600 gallons/day. (The birds nest aquifer apparently generates 3 to 4 gpm into the mine).

(b) If the air flow were increased to 25,000 cfm at the pump station, up to an additional 600 gallons/day of this water could be carried out with the air. This could decrease pump usage approximately 15%.

The mine is also producing oil which gravity flows into a 20,000 gallon sump located 100 vertical feet below the water sump. The oil is pumped twice a year to a surface holding tank and transported by truck to Vernal for disposal. An air pump is used to push the oil to the Gardner Denver pump at the water sump. The oil is then pumped to the surface in the common discharge line. Since a compressor is not available at the mine site, it is necessary to rent a diesel compressor when the oil is pumped.

The change in airflow will not impact the oil volume. However, by increasing the capacity of the sump, the oil will not have to be pumped as often.

Mine Monitoring

A Conspec mine monitoring system was installed and operable prior to the BLM obtaining the project. Western Engineering in Salt Lake designed and installed the equipment. The following monitors were installed in the mine:

(3) carbon monoxide detectors;

(4) methane detectors; and

(2) hydrogen sulfide detectors

Approximately 5000 feet of cable was used to connect the monitors to the computer in the service building. The BLM has disconnected the computer and has it stored in the Vernal office.

I suggest the system be put back on line to monitor the underground air quality. Additional monitors can be purchased for the system to check the air flow and sump levels at the pump station. The monitor system will decrease the need for underground inspection by maintenance personnel.

jb
Attachments
cc: John Blake, State Lands
Gary Hunter, BLM
Lowell Braxton
MN17/43-47

Prepared By **Utah State Division of Oil, Gas and Mining**
June 8, 1989 **Table 1**

Date	Day	Fan On	A Decline				Water Pump Station			
			CH4	H2S	fpm	cfm	CH4	H2S	fpm	cfm
11 3 86	307	Yes	0.0	0.3			0.0	0.3		
11 7 86	311	Yes	0.0	0.4			0.0	0.4		
11 13 86	317	Yes	0.0	0.3			0.0	0.3		
11 14 86	318	No	0.0	0.2			0.0	0.2		
11 15 86	319	No	0.0	0.2			0.0	0.2		
11 16 86	320	No	0.1	0.3			0.0	0.2		
11 19 86	323	Yes	0.0	0.3			0.0	0.3		
11 24 86	328	Yes	0.0	0.2			0.0	0.3		
11 28 86	332	Yes	0.0	0.3			0.0	0.2		
12 2 86	336	Yes	0.0	0.3			0.0	0.3		
12 5 86	339	Yes	0.1	0.4			0.0	0.3		
12 9 86	343	Yes	0.0	0.3			0.0	0.3		
12 12 86	346	Yes	0.0	0.3			0.0	0.3		
12 16 86	350	Yes	0.0	0.2			0.0	0.2		
12 19 86	353	No	0.0	0.2			0.1	0.2		
12 24 86	358	No	0.0	0.3			0.0	0.2		
12 30 86	364	No	0.0	0.3			0.0	0.3		
1 8 87	8	No	0.0	0.2			0.0	0.3		
1 20 87	20	No	0.0	0.1			0.0	0.0		
1 28 87	28	No	0.0	0.2			0.0	0.2		
2 5 87	36	No	0.0	0.2			0.0	0.3		
2 13 87	44	No	0.0	0.2			0.0	0.1		
2 18 87	49	No	0.1	0.3			0.0	0.2		
2 25 87	56	No	0.0	0.3			0.1	0.2		
3 4 87	63	No	0.0	0.1			0.0	0.0		
3 11 87	70	No	0.0	0.2			0.0	0.3		
3 19 87	78	No	0.0	0.2			0.0	0.6		
3 25 87	84	No	0.0	1.0			0.0	0.8		
3 27 87	86	No	0.0	1.2			0.1	0.4		
3 30 87	89	No	0.0	1.4			0.0	0.2		
4 5 87	95	No	0.0	0.3			0.0	0.1		
4 14 87	104	No	0.0	0.4			0.0	0.1		
4 21 87	111	No	0.1	0.2			0.1	0.0		
4 29 87	119	No	0.0	0.1			0.1	0.1		
5 1 87	121	No	0.1	0.1			0.3	0.1		
5 4 87	124	No	0.2	0.0			0.1	0.0		
5 8 87	128	No	0.2	0.4			0.2	0.4		
5 11 87	131	No	0.0	0.3			0.0	0.3		
5 15 87	135	No	0.1	0.3			0.1	0.3		
5 19 87	139	No	0.2	0.3			0.2	0.3		
5 24 87	144	No	0.2	0.4			0.2	0.4		
5 31 87	151	No	0.2	0.8			0.2	0.7		
6 1 87	152	No	0.3	0.7			0.2	0.3		
6 2 87	153	No	0.2	0.4			0.2	0.3		
6 11 87	162	No	0.3	0.4			0.1	0.2		

Historic Ventilation and Air Quality - Idle Basis
White River Shale Project Uintah County

Prepared By **Utah State Division of Oil, Gas and Mining**
June 8, 1989 **Table 1**

Date	Day	Fan On	A Decline				Water Pump Station			
			CH4	H2S	fpm	cfm	CH4	H2S	fpm	cfm
6 15 87	166	No	0.2	0.1			0.2	0.1		
6 22 87	173	No	0.2	0.1			0.2	0.1		
6 23 87	174	No	0.3	0.1			0.2	0.1		
6 24 87	175	No	0.2	0.1			0.1	0.1		
6 25 87	176	No	0.4	0.2			0.3	0.1		
6 26 87	177	No	0.3	0.2			0.3	0.2		
6 29 87	180	No	0.3	0.2			0.3	0.2		
6 30 87	181	No	0.4	0.3			0.4	0.2		
7 1 87	182	No	0.6	0.3			0.5	0.2		
7 2 87	183	No	0.6	0.4			0.5	0.3		
7 6 87	187	No	0.5	0.3			0.4	0.3		
7 7 87	188	No	0.4	0.2			0.3	0.2		
7 9 87	190	No	0.4	0.2			0.4	0.2		
7 10 87	191	No	0.4	0.2			0.4	0.2		
7 13 87	194	No	0.4	0.3			0.4	0.3		
7 14 87	195	No	0.4	0.3			0.4	0.3		
7 15 87	196	No	0.4	0.3			0.5	0.3		
7 20 87	201	No	0.6	0.4			0.6	0.4		
7 21 87	202	No	0.6	0.4			0.6	0.4		
7 22 87	203	No	0.7	0.3			0.7	0.3		
7 29 87	210	No	0.9	0.4			0.7	0.4		
8 3 87	215	No	0.6	0.3			0.6	0.3		
8 5 87	217	No	0.4	0.3			0.4	0.3		
8 10 87	222	No	0.7	0.9			0.5	0.9		
8 13 87	225	No	0.6	0.4			0.5	0.2		
8 17 87	229	No	0.5	0.3			0.4	0.1		
8 21 87	233	No	0.6	0.5			0.6	0.3		
8 25 87	237	No	0.7	0.4			0.5	0.2		
9 2 87	245	No	0.2	0.1	75	26,250	0.1	0.0	40	9,200
9 7 87	250	No	0.1	0.1	80	28,000	0.1	0.0	40	9,200
9 16 87	259	No	0.3	0.0	80	28,000	0.1	0.0	40	9,200
9 21 87	264	No	0.1	0.1	85	29,750	0.1	0.0	45	10,350
9 26 87	269	No	0.1	0.0	85	29,750	0.1	0.0	45	10,350
9 28 87	271	No	0.0	0.1	120	42,000	0.0	0.1	60	13,800
9 30 87	273	No	0.0	0.4	130	45,500	0.0	0.3	60	13,800
10 7 87	280	No	0.1	0.0	140	49,000	0.1	0.0	80	18,400
10 13 87	286	No	0.2	0.0	120	42,000	0.1	0.0	40	9,200
10 20 87	293	No	0.1	0.2	100	35,000	0.0	0.1	35	8,050
10 26 87	299	No	0.1	0.3	110	38,500	0.1	0.1	45	10,350
10 29 87	302	Yes	0.1	0.0	100	35,000	0.1	0.0	40	9,200
11 4 87	308	No	0.1	0.0	80	28,000	0.0	0.0	40	9,200
11 10 87	314	No	0.0	0.1	80	28,000	0.0	0.0	60	13,800
11 18 87	322	No	0.0	0.1	100	35,000	0.0	0.1	70	16,100
11 24 87	328	No	0.0	0.1	110	38,500	0.0	0.1	80	18,400
12 2 87	336	No	0.0	0.0	90	31,500	0.0	0.0	60	13,800
12 7 87	341	No	0.0	0.1	110	38,500	0.0	0.0	80	18,400

Historic Ventilation and Air Quality - Idle Basis
White River Shale Project Uintah County

Prepared By **Utah State Division of Oil, Gas and Mining**
June 8, 1989 **Table 1**

Date	Day	Fan On	A Decline				Water Pump Station			
			CH4	H2S	fpm	cfm	CH4	H2S	fpm	cfm
12 9 87	343	No	0.0	0.0	100	35,000	0.0	0.0	80	18,400
12 14 87	348	No	0.0	0.0	110	38,500	0.0	0.0	90	20,700
12 22 87	356	No	0.1	0.0	120	42,000	0.0	0.0	100	23,000
12 28 87	362	No	0.0	0.0	110	38,500	0.0	0.0	90	20,700
1 5 88	5	No	0.0	0.0	120	42,000	0.0	0.0	100	23,000
1 11 88	11	No	0.0	0.0	110	38,500	0.0	0.0	80	18,400
1 20 88	20	No	0.0	0.0	110	38,500	0.0	0.0	90	20,700
1 28 88	28	No	0.0	0.0	120	42,000	0.0	0.0	100	23,000
2 5 88	36	No	0.1	0.1	110	38,500	0.0	0.0	90	20,700
2 8 88	39	No	0.0	0.1	120	42,000	0.0	0.1	100	23,000
2 17 88	48	No	0.0	0.2	110	38,500	0.0	0.1	90	20,700
2 25 88	56	No	0.0	0.3	80	28,000	0.0	0.2	60	13,800
3 2 88	62	No	0.0	0.2	80	28,000	0.0	0.2	60	13,800
3 8 88	68	No	0.0	0.2	80	28,000	0.0	0.1	60	13,800
3 17 88	77	No	0.0	0.3	80	28,000	0.0	0.2	50	11,500
3 22 88	82	No	0.0	0.0	80	28,000	0.0	0.0	50	11,500
3 31 88	91	No	0.0	0.1	80	28,000	0.0	0.0	50	11,500
4 5 88	96	No	0.0	0.0	80	28,000	0.0	0.0	40	9,200
4 13 88	104	No	0.0	0.1	70	24,500	0.0	0.0	30	6,900
4 18 88	109	No	0.0	0.0	80	28,000	0.0	0.0	40	9,200
4 26 88	117	No	0.0	0.0	80	28,000	0.0	0.0	40	9,200
5 5 88	126	No	0.0	0.0	90	31,500	0.0	0.0	50	11,500
5 10 88	131	No	0.0	0.0	50	17,500	0.0	0.0	20	4,600
5 19 88	140	No	0.0	0.0	60	21,000	0.0	0.0	30	6,900
5 27 88	148	No	0.1	0.0	60	21,000	0.0	0.0	30	6,900
6 2 88	154	No	0.1	0.0	50	17,500	0.0	0.0	25	5,750
6 8 88	160	No	0.2	0.0	50	17,500	0.2	0.0	20	4,600
6 14 88	166	No	0.1	0.0	50	17,500	0.1	0.0	20	4,600
6 22 88	174	No	0.0	0.0	50	17,500	0.0	0.0	20	4,600
6 27 88	179	No	0.1	0.0	60	21,000	0.0	0.0	20	4,600
7 6 88	188	No	0.0	0.0	60	21,000	0.0	0.0	25	5,750
7 12 88	194	No	0.0	0.0	50	17,500	0.0	0.0	20	4,600
7 19 88	201	No	0.1	0.0	50	17,500	0.0	0.0	20	4,600
7 27 88	209	No	0.1	0.0	60	21,000	0.0	0.0	20	4,600
8 1 88	214	No	0.0	0.0	50	17,500	0.0	0.0	20	4,600
8 8 88	221	No	0.0	0.0	50	17,500	0.0	0.0	25	5,750
8 17 88	230	No	0.1	0.0	50	17,500	0.0	0.0	20	4,600
8 23 88	236	No	0.0	0.0	50	17,500	0.0	0.0	25	5,750
8 31 88	244	No	0.0	0.0	60	21,000	0.0	0.0	30	6,900
9 7 88	251	No	0.1	0.0	55	19,250	0.0	0.0	30	6,900
9 13 88	257	No	0.1	0.0	50	17,500	0.0	0.0	25	5,750
9 21 88	265	No	0.0	0.0	40	14,000	0.0	0.0	10	2,300
9 29 88	273	No	0.1	0.0	50	17,500	0.0	0.0	10	2,300
10 5 88	279	No	0.0	0.0	40	14,000	0.0	0.0	10	2,300
10 13 88	287	No	0.1	0.0	50	17,500	0.0	0.0	20	4,600
10 17 88	291	No	0.0	0.0	40	14,000	0.0	0.0	20	4,600

Prepared By Utah State Division of Oil, Gas and Mining
June 8, 1989 Table 1

Date	Day	Fan On	A Decline				Water Pump Station			
			CH4	H2S	fpm	cfm	CH4	H2S	fpm	cfm
10 27 88	301	No	0.1	0.0	60	21,000	0.0	0.0	20	4,600
10 31 88	305	No	0.0	0.0	70	24,500	0.0	0.0	30	6,900
11 3 88	308	No	0.0	0.0	80	28,000	0.0	0.0	40	9,200
11 8 88	313	No	0.0	0.0	90	31,500	0.0	0.0	40	9,200
11 15 88	320	No	0.0	0.0	100	35,000	0.0	0.0	50	11,500
11 21 88	326	No	0.1	0.0	100	35,000	0.0	0.0	50	11,500
11 29 88	334	No	0.1	0.0	90	31,500	0.0	0.0	40	9,200
12 6 88	341	No	0.0	0.0	110	38,500	0.0	0.0	50	11,500
12 14 88	349	No	0.0	0.0	120	42,000	0.0	0.0	60	13,800
12 22 88	357	No	0.0	0.0	120	42,000	0.0	0.0	60	13,800
12 28 88	363	No	0.0	0.0	110	38,500	0.0	0.0	60	13,800
1 3 89	3	No	0.0	0.0	120	42,000	0.0	0.0	60	13,800
1 12 89	12	No	0.0	0.0	140	49,000	0.0	0.0	80	18,400
1 18 89	18	No	0.0	0.0	140	49,000	0.0	0.0	80	18,400
1 26 89	26	No	0.0	0.0	150	52,500	0.0	0.0	80	18,400
2 3 89	34	No	0.0	0.0	140	49,000	0.0	0.0	80	18,400
2 11 89	42	No	0.0	0.0	120	42,000	0.0	0.0	60	13,800
2 17 89	48	No	0.0	0.0	130	45,500	0.0	0.0	60	13,800
2 23 89	54	No	0.0	0.0	140	49,000	0.0	0.0	70	16,100
3 3 89	62	No	0.0	0.0	120	42,000	0.0	0.0	60	13,800
3 8 89	67	No	0.0	0.0	110	38,500	0.0	0.0	50	11,500
3 18 89	77	No	0.0	0.0	110	38,500	0.0	0.0	40	9,200
3 22 89	81	No	0.0	0.0	100	35,000	0.0	0.0	40	9,200
3 30 89	89	No	0.1	0.0	100	35,000	0.0	0.0	40	9,200
4 5 89	95	No	0.0	0.0	90	31,500	0.0	0.0	30	6,900
4 13 89	103	No	0.1	0.0	90	31,500	0.0	0.0	30	6,900
4 19 89	109	No	0.0	0.0	80	28,000	0.0	0.0	20	4,600
4 27 89	117	No	0.1	0.0	80	28,000	0.0	0.0	25	5,750
5 2 89	122	No	0.0	0.0	80	28,000	0.0	0.0	20	4,600
5 8 89	128	No	0.1	0.0	90	31,500	0.0	0.0	30	6,900
5 12 89	132	No	0.1	0.0	90	31,500	0.0	0.0	30	6,900
5 17 89	137	No	0.0	0.0	80	28,000	0.0	0.0	20	4,600
5 20 89	140	No	0.0	0.0	90	31,500	0.0	0.0	30	6,900

X-section of A Decline: 350 square feet
X-section of C Decline: 230 square feet

Historic Power Consumption - Idle Basis **Table 2**
White River Shale Project **Uintah County**

Prepared By **Utah State Division of Oil, Gas and Mining**
June 6, 1989

Month	Demand Factor	Regular kWh Used	Demand Cost	Cost for kWh Used	Subtotal	Minimum Charge	Customer Charge	Total Charge
June 1988	35	13,200	298	649	946	2,456	70	2,526
July 1988	19	15,000	162	737	899	2,456	70	2,526
Aug 1988	64	16,200	544	796	1,340	2,456	70	2,526
Sept 1988	60	16,800	510	826	1,336	2,456	70	2,526
Oct 1988	71	16,800	604	826	1,429	2,456	70	2,526
Nov 1988	60	24,600	510	1,209	1,719	2,456	70	2,526
Dec 1988	66	36,000	561	1,769	2,330	2,456	70	2,526
Jan 1989	66	46,200	561	2,271	2,832	2,456	70	2,902
Feb 1989	66	34,800	561	1,710	2,271	2,456	70	2,526
Mar 1989	60	30,600	510	1,504	2,014	2,456	70	2,526
Apr 1989	55	22,800	468	1,121	1,588	2,456	70	2,526
May 1989	80	17,400	680	855	1,535	2,456	70	2,526
							Yearly Total	30,688
							Monthly Average	2,557

Large Power Primary Service - Monthly Rates
Customer Charge: 70.00
Demand Charge: 8.50
Energy Charge: 0.04915 per kWh

##########

Month	Demand Factor	Regular kWh Used	Demand Cost	Cost for kWh Used	Subtotal	Minimum Charge	Customer Charge	Total Charge
June 1988	35	13,200	315	638	953	212	58	1,011
July 1988	19	15,000	171	725	896	212	58	954
Aug 1988	64	16,200	576	783	1,359	212	58	1,417
Sept 1988	60	16,800	540	812	1,352	212	58	1,410
Oct 1988	71	16,800	639	812	1,451	212	58	1,509
Nov 1988	60	24,600	540	1,189	1,729	212	58	1,787
Dec 1988	66	36,000	594	1,740	2,334	212	58	2,392
Jan 1989	66	46,200	594	2,232	2,826	212	58	2,884
Feb 1989	66	34,800	594	1,682	2,276	212	58	2,334
Mar 1989	60	30,600	540	1,479	2,019	212	58	2,077
Apr 1989	55	22,800	495	1,102	1,597	212	58	1,655
May 1989	80	17,400	720	841	1,561	212	58	1,619
							Yearly Total	21,046
							Monthly Average	1,754

Large Power Utah Service - Monthly Rates
Customer Charge: 29.00 each meter
Demand Charge: 9.00
Energy Charge: 0.04832 per kWh

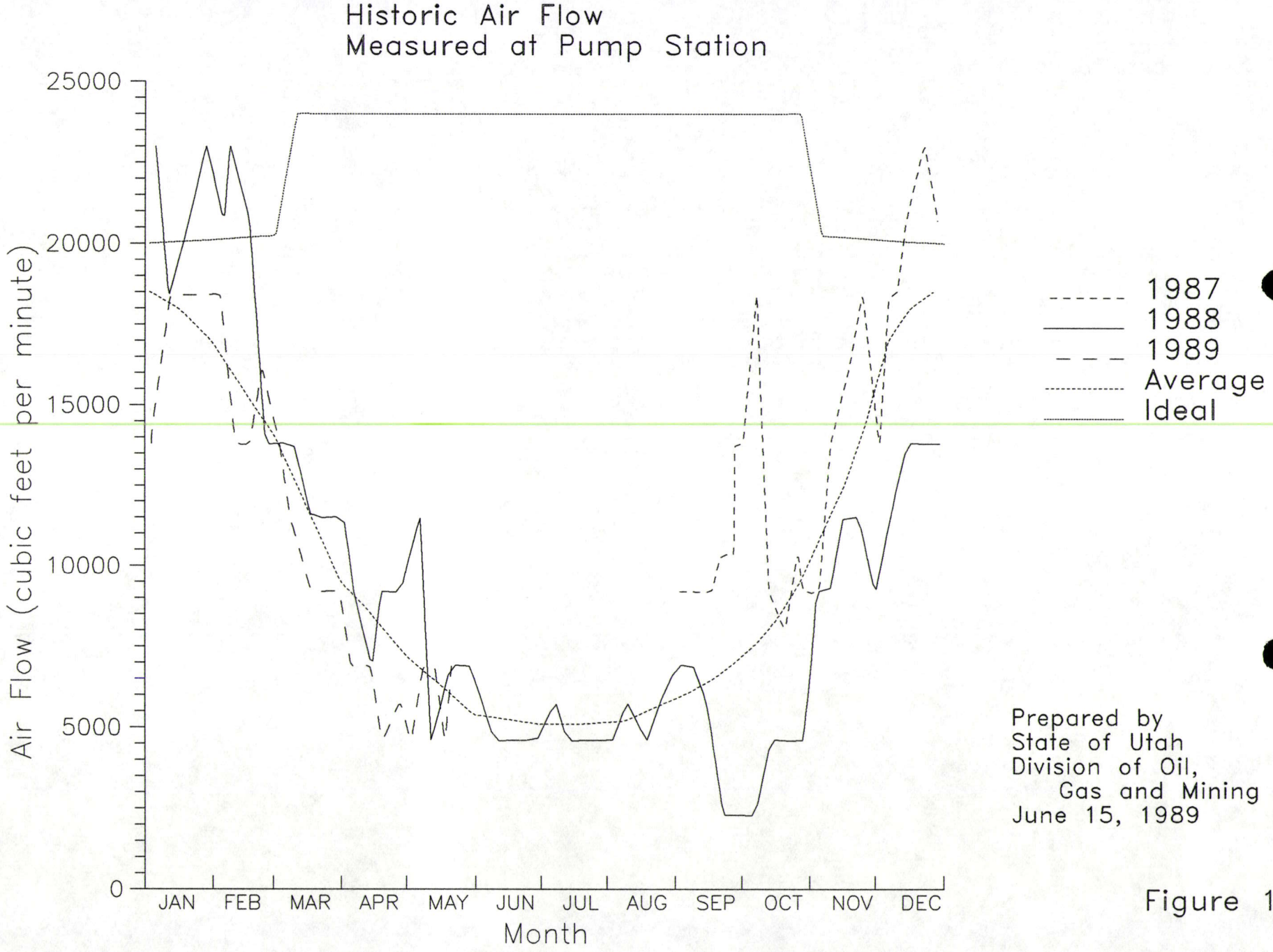
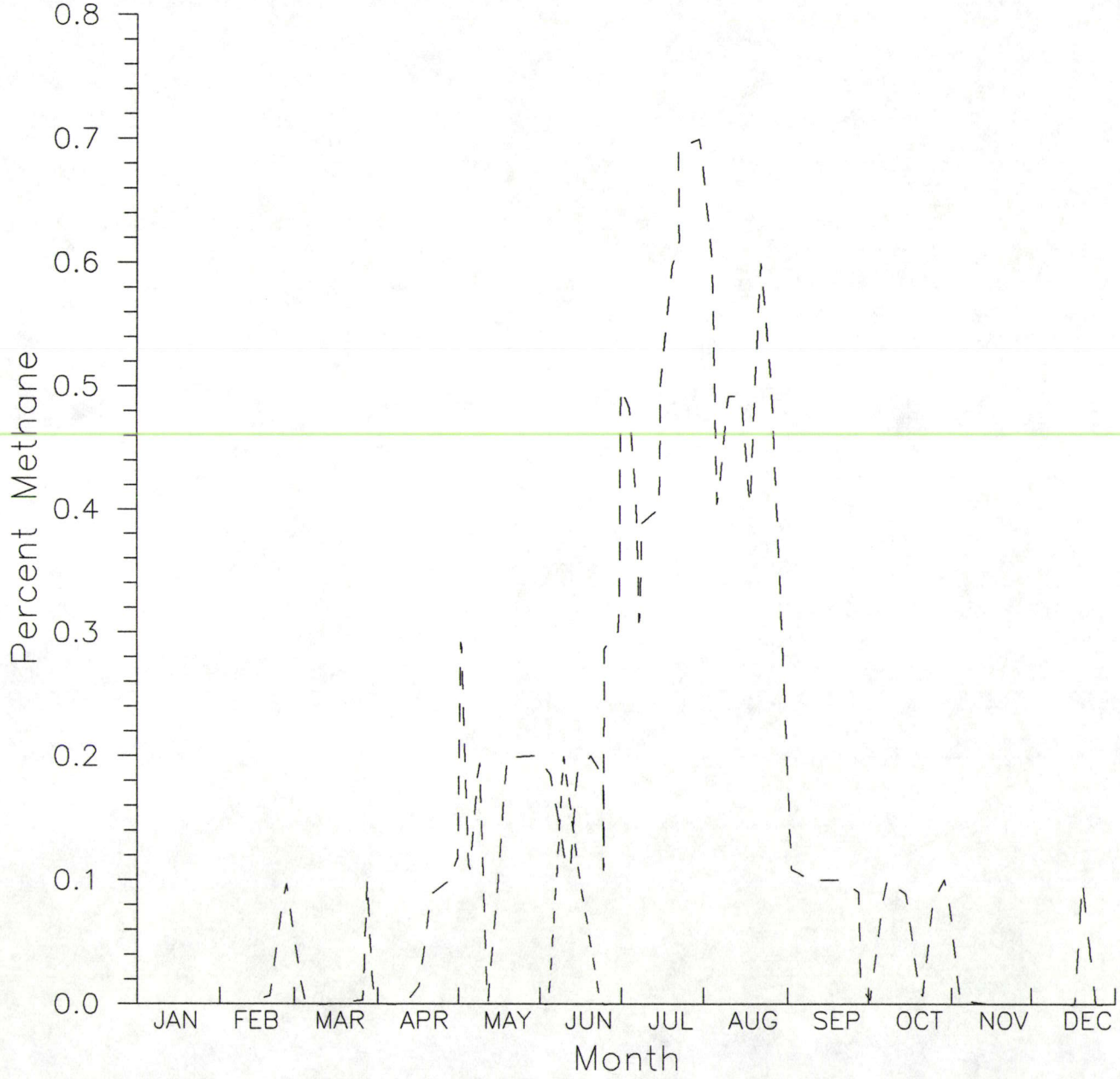

Historic Air Flow
Measured at Pump Station
Air Flow (cubic feet per minute)
25000
20000
15000
10000
5000
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
1987
1988
1989
Average
Ideal
Prepared by
State of Utah
Division of Oil,
Gas and Mining
June 15, 1989

Figure 1

Historic Methane Concentrations Measured at Pump Station



1986
1987
1988
1989

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Explosive Range: 5 to 15 percent

Figure 2

Historic Hydrogen Sulfide Concentrations Measured at Pump Station

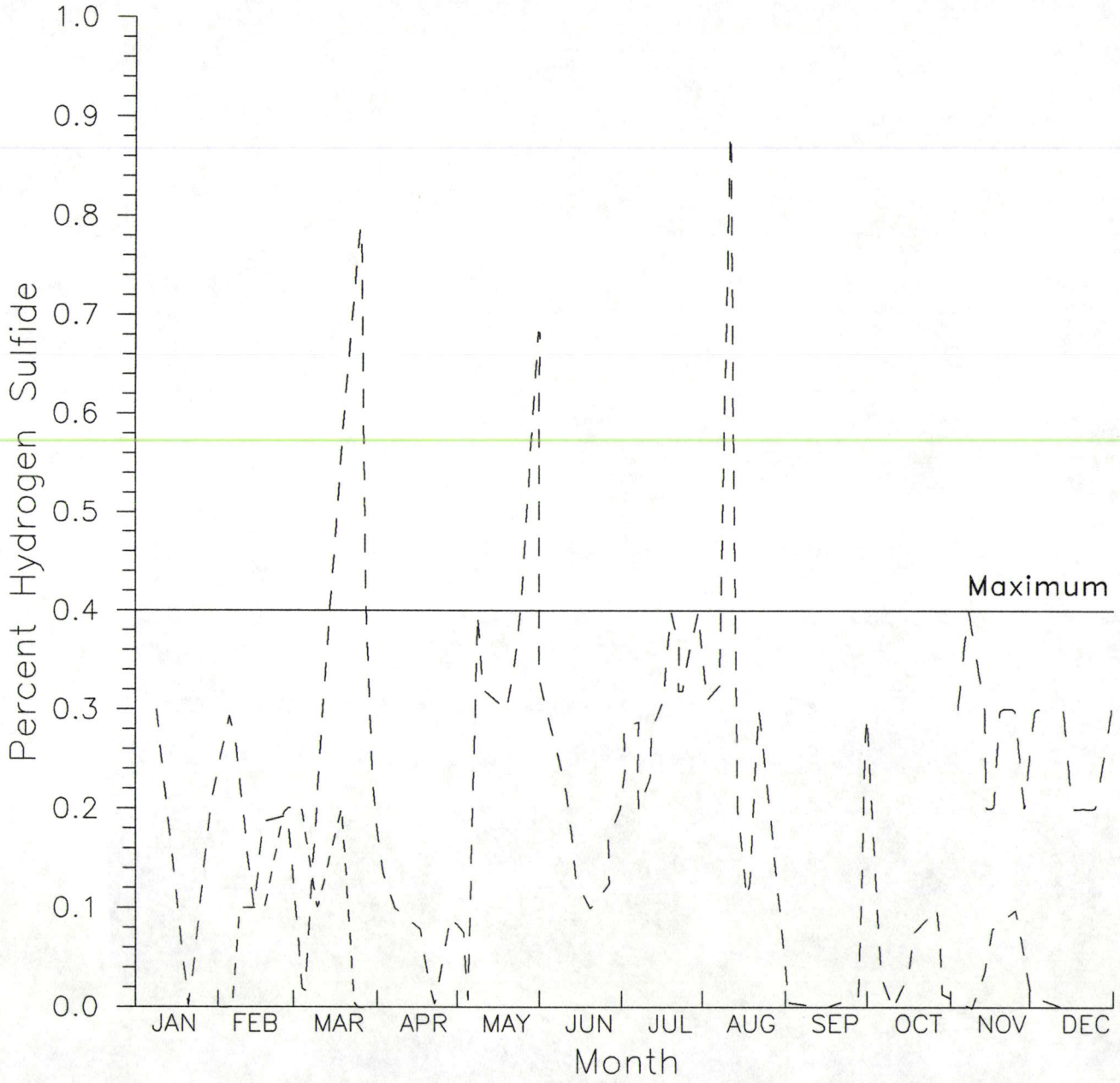

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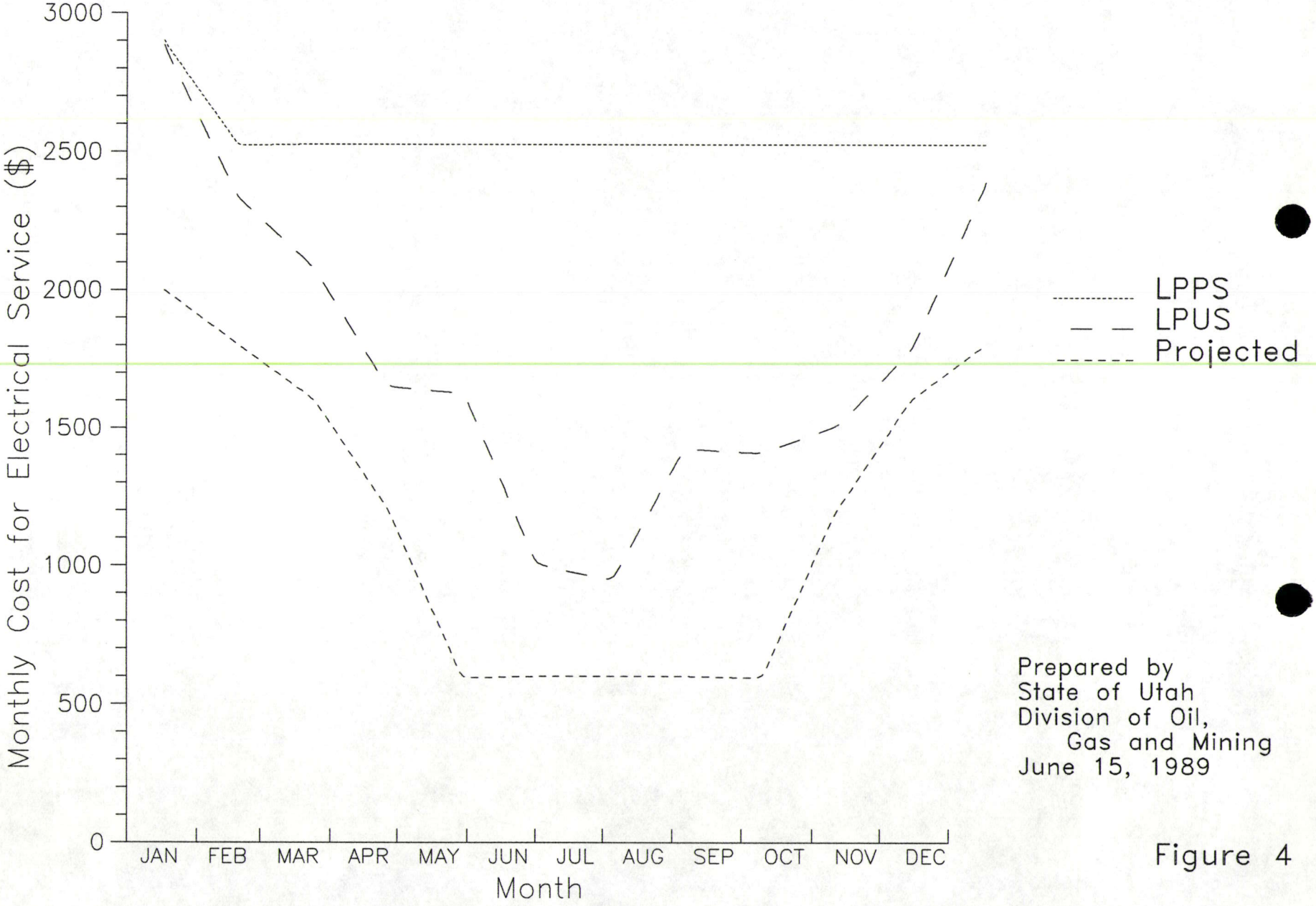
Figure 3

Explosive Range: 4 to 44 percent

Historic Power Consumption and Projected Savings



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June 15, 1989

Figure 4